



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/726,516

12/04/2003

Renato Conta

000280.00036

7168

22907

7590

08/10/2005

BANNER & WITCOFF

1001 G STREET N W

SUITE 1100

WASHINGTON, DC 20001

EXAMINER

STEPHENS, JUANITA DIONNE

ART UNIT

PAPER NUMBER

2853

DATE MAILED: 08/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/726,516

Applicant(s)

CONTA ET AL.

Examiner

Juanita D. Stephens

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Amendment filed 5/3/2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 and 25-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 25-33 is/are allowed.
- 6) ☒ Claim(s) 1-6 and 9-15 is/are rejected.
- 7) ☒ Claim(s) 7 and 8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 10/344,412.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5/3/05, 5/11/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings were received on 5/3/1005. These drawings are approved.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-6 and 9-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Yagi et al. (US 6,143,190).

Yagi et al. discloses a thermal inkjet printhead (Fig. 17) having grooves formed by dry etching, wet etching and electrochemical etching, comprising: 1) nozzles (emission holes 302), 2) chambers (located beneath the emission holes), 3) resistors (emission energy generators 301), 4) a groove (ink supply hole 303), made in a substrate (304), suitable for fluidly ducting ink to said chamber (col 18, ln 60-col 19, ln 30), wherein said groove comprises a first portion (creation of window 14 of Fig. 1C) produces by a dry etching (col 11, lns 13-20), and a second portion produced by means of an electrochemical etching (col 11, 21-42), wherein said substrate is made of silicon (col 18, lns 60-61), 5) wherein said nozzles (303) and said resistors (301) are disposed in columns parallel to one and the same geometric references (extending in the lengthwise direction of the substrate, as shown on Fig. 17), 6) wherein said first portion (creation of window 14 of Fig. 1C) of said groove has a substantially rectangular shape

Art Unit: 2853

having a greater side parallel to said geometric reference (col 11, Ins 22-25; col 12, Ins 20-25; and as shown on Figs. 1C and 17), 7) wherein said second portion of said groove has a substantially rectangular shape having a greater side parallel to said geometric reference (col 12, Ins 20-25; and as shown on Figs. 6B and 19D), 8) wherein said first portion of said groove also comprises a wet etching having a substantially rectangular shape and a greater side parallel to a crystallographic axis of said silicon which constitutes said substrate, and that said crystallographic axis cannot be parallel to said geometric reference (col 11, Ins 30-35, and as shown in Fig. 1D), 9) an anti-cavitation layer (221) of electrically conducting material (col 23, Ins 63-67), and 10) said anti-cavitation layer of electrically conducting material forms a single equipotential surface through said head (as shown on Figs. 22F, 22G and 23), wherein said anti-cavitation layer is made of tantalum (col 23, In 63).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 12 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yagi et al. (US 6,143,190) in view of Bhaskar et al. (US 5,635,968).

Yagi et al. further at least teaches said anti-cavitation layer of tantalum is between 200 and 1000 Å. (col 23, In 63). Yagi et al. teaches the claimed invention, with the exception 1) said anti-cavitation layer of tantalum is between 0.4 and 0.6 µm thick

Art Unit: 2853

(recited in claim 12), and 2) said printhead comprises a first metal or a second metal and that said first metal or said second forms one or more electric contacts with said anti-cavitation layer (recited in claim 15). Bhaskar et al. at least teaches said printhead comprises said anti-cavitation layer of tantalum is between 0.4 and 0.6 μm thick (5500 angstrom converts to 0.5500000000000000 micrometer μm)(col 11, lns 60-64), and said printhead comprises a first metal or a second metal and that said first metal or said second forms one or more electric contacts with said anti-cavitation layer (col 12, lns 29-37). It would have been obvious at the time the invention was made to a person having ordinary skill in the inkjet art to modify Yagi et al. by the anti-cavitation layer of tantalum between 0.4 and 0.6 μm thick, and the printhead having first metal or a second metal and that said first metal or said second forms one or more electric contacts with said anti-cavitation layer as taught to be old by Bhaskar et al. for the purpose of reducing the number of interconnections per driver, increasing the speed of the printhead, and reducing crosstalk.

6. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yagi et al. (US 6,143,190) in view of Garcia (US 5,317,346)

Yagi et al. are discussed above. Yagi et al. further does not disclose said anti-cavitation layer covered by a layer of gold (recited in claim 13) and wherein the layer of gold is between 100 and 200 Å (recited in claim 14). Garcia at least teaches said anti-cavitation layer covered by a layer of gold (col 4, lns 5-10) having some particular thickness. It would have been obvious at the time the invention was made to a person having ordinary skill in the inkjet art to modify Yagi et al. by providing the anti-cavitation

Art Unit: 2853

layer covered by a layer of gold as taught to be old by Garcia for the purpose of providing a printhead structure having increased strength, allows for smaller thin film substrates and provides for reduced manufacturing costs. It would have been further obvious at the time the invention was made to a person having ordinary skill in the ink jet art to modify Yagi et al. in view of Garcia by providing the specific thickness of the gold layer as 100 and 200 Å, since applicant has not disclosed that having the specific thickness solves any stated problem or is for any particular purpose and it appears that the printhead would perform equally well with the gold layer of any thickness.

Allowable Subject Matter

7. Claims 7 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Claims 25-33 are allowed.

Response to Arguments

9. Applicant's arguments filed 5/3/2005 have been fully considered but they are not persuasive.

Applicant argues that Yagi fails to teach or suggest a first portion of a groove made in a substrate produced by dry etching and a second portion of the groove made in the substrate produced by electrochemical etching. The Examiner's position is that Yagi et al. clearly teaching etching a first and second portion of the groove. However, determination of patentability is based on the product itself (i.e. groove), not on its

Art Unit: 2853

method or production. In re Thorpe, 777, F.2d 695, 698, 227 USPQ 964,966 (Fed. Cir. 1985).

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

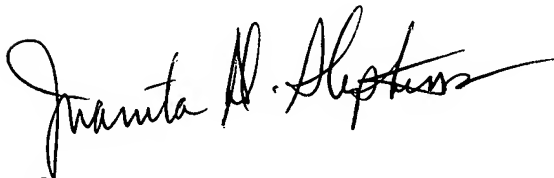
Contact Information

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juanita D. Stephens whose telephone number is (571) 272-2153. The examiner can normally be reached on Flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2853

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Juanita D. Stephens", with a stylized flourish at the end.

Juanita D. Stephens
Primary Examiner
Art Unit 2853

JS

August 8, 2005